

AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): Procedure for the cold processing of tubular metal elements or other elements with dead or through holes, nuts ~~or similar~~, comprising the following machining ~~stages-steps~~:

- (a) ~~setting-up and preparation of~~ preparing a blank (10) ~~in rolls or bars~~ of full metal material;
- (b) ~~straightening the full metal material in the case of rolls and~~ cutting of the metal material (10) into pieces of a determined length;
- (c) ~~pressing in sequence achieved by passing these~~ the pieces sequentially through a plurality of work stations (31) of a work centre ~~consisting of comprising~~ several hydraulic presses in order to obtain a blank element presenting one or two longitudinally opposite dead holes (19) separated by a central transverse section (20);
- (d) ~~the through drilling of the blank by removal of this central traverse section (20);~~
wherein the metal elements have a diameter greater than 30 mm.

Claim 2 (currently amended): Procedure for the cold processing of metal elements such as standard and special shape extruded or pressed screws, ~~etc.~~, comprising the following machining ~~stages-steps~~:

- (a) ~~setting-up and preparation of~~ preparing a blank (10) ~~in rolls or bars~~ of full metal material;
- (b) ~~straightening the full metal material in the case of rolls and the~~ cutting of this the metal material (10) into pieces of a determined length;
- (c) ~~pressing in sequence achieved by passing these~~ the pieces sequentially through a plurality of work stations (31) of a multi-~~hydraulic~~-press plant in order to obtain a finished element (20) with or without swarf or waste
wherein the metal elements have a diameter greater than 30 mm.

Claim 3 (currently amended): The procedure ~~Procedure~~ according to any one of the claim 1, in which the setting up and preparation of the full blank (10) differs according to the metal

material used.

Claim 4 (currently amended): The procedure ~~Procedure~~ according to claim 3, carried out on material consisting of stainless steel, wherein the stainless steel is initially treated by solution annealing and pickled in a balanced solution of sulphuric acid, hydrofluoric acid, potassium permanganate and hydrogen peroxide, and subsequently washed repeatedly by means of immersion in a salting tank in order to facilitate the pressing.

Claim 5 (currently amended): The procedure ~~Procedure~~ according to claim 3, carried out on material consisting of low-alloy steel, wherein this material is pickled in sulphuric acid and subsequently washed in a phosphating tank in which, by chemical reaction, a layer of zinc phosphate is created on the surface of the piece, then immersed in a sodium stearate tank where, again by chemical reaction, a thin layer of zinc stearate forms on top of the previous layer of zinc phosphate.

Claim 6 (currently amended): The procedure ~~Procedure~~ according to claim 2, wherein the products undergo shearing, ~~for example for hexagonal head screws~~, which can be carried out by means of a mechanical press.

Claim 7 (currently amended): The procedure ~~Procedure~~ according to claim 2, carried out on starting material in the form of rolls, in which the previously washed metal material is straightened by loading it on a wire-straightening unit designed to unroll the skein.

Claim 8 (currently amended): The procedure ~~Procedure~~ according to claim 2, carried out on starting material in the form of bars, in which these bars are loaded in bundles in a bar sectioning plant and in which the bars are presented at the cutting station in a synchronised way according to the needs of the a machining centre consisting of the presses.

Claim 9 (currently amended): The procedure ~~Procedure~~ according to claim 7, in which the free end of the roll is pulled through a first set of rollers and then through a system of opposite rollers designed to straighten the wire and transfer it to a cutting unit.

Claim 10 (currently amended): The procedure ~~Procedure~~ according claim 8, in which the material is cut into pieces of a predetermined length, advantageously by various possible

procedures such as for example mechanical or hydraulic processes by means of one or mobile blades or by a circular saw.

Claim 11 (currently amended): The procedure ~~Procedure~~ according to claim 1, characterised in that the a plant or machining centre ~~(30) consists of~~ a series of hydraulic presses of various sizes and power levels ~~(31-34)~~ connected by a transfer unit designed to move the pieces ~~(10)~~ being machined.

Claim 12 (currently amended): The procedure ~~Procedure~~ according to claim 11, wherein the transfer unit consists of a series of gripper units ~~(40-44)~~ powered by an appropriate source of energy.

Claim 13 (currently amended): The procedure ~~Procedure~~ according to claim 1, wherein the drilling ~~or shearing~~ is carried out by a special unit consisting of a vertical press.

Claim 14 (currently amended): The procedure ~~Procedure~~ according to claim 13, wherein this vertical press consists of a mechanical press.

Claim 15 (currently amended): The procedure ~~Procedure~~ according to claim 1, wherein the functioning and synchronisation of the individual presses and of the transfer unit are controlled by a PLC or a microprocessor.

Claim 16 (currently amended): Plant for the implementation of a procedure according to claim 1 for the cold processing of tubular metal elements or other elements with dead or through holes, nuts comprising the following machining steps:

- (a) preparing a blank of full metal material;
- (b) straightening the full metal material cutting of the metal material into pieces of a determined length;
- (c) passing the pieces sequentially through a plurality of work stations of a work centre comprising several presses in order to obtain a blank element presenting one or two longitudinally opposite dead holes separated by a central transverse section;
- (d) through drilling of the blank by removal of this central traverse section;
wherein the metal elements having a diameter greater than 30 mm,

wherein the plant comprises a series of hydraulic presses adjacent to each other, designed

to carry out a successive series of pressing operations on pieces to be machined which are transferred from one press to another by means of appropriate automated manipulators.

Claim 17 (currently amended): The plant ~~Plant~~ according to claim 16, wherein the plant ~~it~~ also comprises a drilling or shearing station.

Claim 18 (currently amended): The plant ~~Plant~~ according to claim 17, wherein this drilling or shearing station consists of a vertical mechanical press.

Claim 19 (currently amended): The procedure ~~Procedure~~ according to claim 9, in which the material is cut into pieces of a predetermined length, advantageously by various possible procedures ~~such as for example mechanical or hydraulic processes~~ by means of one or mobile blades or by a circular saw.

Claim 20 (new): The procedure according to any one of the claim 2, in which the setting up and preparation of the full blank differs according to the metal material used.

Claim 21 (new): The procedure according to claim 20, carried out on material consisting of stainless steel, wherein the stainless steel is initially treated by solution annealing and pickled in a balanced solution of sulphuric acid, hydrofluoric acid, potassium permanganate and hydrogen peroxide, and subsequently washed repeatedly by means of immersion in a salting tank in order to facilitate the pressing.

Claim 22 (new): The procedure according to claim 20, carried out on material consisting of low-alloy steel, wherein this material is pickled in sulphuric acid and subsequently washed in a phosphating tank in which, by chemical reaction, a layer of zinc phosphate is created on the surface of the piece, then immersed in a sodium stearate tank where, again by chemical reaction, a thin layer of zinc stearate forms on top of the previous layer of zinc phosphate.

Claim 23 (new): The procedure according to claim 2, characterised in that a plant or machining centre consists of a series of hydraulic presses of various sizes and power levels connected by a transfer unit designed to move the pieces being machined.

Claim 24 (new): The procedure according to claim 23, wherein the transfer unit consists of a series of gripper units powered by an appropriate source of energy.

Claim 25 (new): The procedure according to claim 2, wherein the drilling is carried out by a special unit consisting of a vertical press.

Claim 26 (new): The procedure according to claim 25, wherein this vertical press consists of a mechanical press.

Claim 27 (new): The procedure according to claim 2, wherein the functioning and synchronisation of the individual presses and of the transfer unit are controlled by a PLC or a microprocessor.

Claim 28 (new): Plant for the implementation of a procedure for the cold processing of metal elements such as standard and special shape extruded or pressed screws, comprising the following machining steps:

- (a) preparing a blank of full metal material;
- (b) straightening the full metal material cutting of the metal material into pieces of a determined length;
- (c) passing the pieces sequentially through a plurality of work stations of a multi-press plant in order to obtain a finished element with or without swarf or waste

wherein the metal elements have a diameter greater than 30 mm

wherein the plant comprises a series of hydraulic presses adjacent to each other, designed to carry out a successive series of pressing operations on pieces to be machined which are transferred from one press to another by means of appropriate automated manipulators.

Claim 29 (new): The plant according to claim 28, wherein the plant also comprises a drilling or shearing station.

Claim 30 (new): The plant according to claim 29, wherein this drilling or shearing station consists of a vertical mechanical press.